# *The Case Against . . .*

# WOODLOT GRAZING

**Robert R. Morrow**

FORESTERS have long argued that continued livestock grazing of farm woodlots is harmful. Many farmers agree; others contend that the woodlot forage is more valuable than the trees, that the cost of fencing exceeds the damage to trees, that grazing is needed to keep down the undergrowth as an aid to maple-sap collection, or that light grazing does little damage to the woodlot. Much of the argument has been based mainly on opinion. Studies of many woodlots by many investigators in neighboring Northeastern States, as well as in New York State, give actual facts.

Continued heavy grazing eventually destroys the woodlot. First, the young trees are destroyed and the soil is compacted. Compacted soil cannot hold much water for tree growth, and the lack of water, together with trampled roots, eventually causes stagheads (dead tops). Dead wood and rot soon follow throughout the remaining branches and the trunk until the tree dies.

The results of continued heavy grazing are easily seen, but the effects of light grazing take place so slowly that often it is believed there is no damage. Even light grazing results in the disappearance of most seedlings and saplings, especially valuable white ash, sugar maple, and basswood. Cattle prefer these to beech and red maple; thus the comparatively worthless trees may predominate in later years. Gradual soil compaction damages some of the tree's feeder roots in the upper 6 inches of soil and may cut tree diameter growth in half.

**Half of New York's woodlots are grazed**

**Poor woodlot management**

Heavy grazing has compacted the soil and destroyed the seedlings and saplings found in ungrazed woods. Prior cutting has taken many of the good trees but left too high a proportion of beech. This land is half woodlot and 10 percent pasture. It should be 100 percent one or the other.

The natural forest soil is like a sponge that collects and holds rain water. In one test, soil from an ungrazed woodlot absorbed water 40 times faster than compacted soil of a woodlot that had been grazed only 10 years. Such compaction often causes water to run overland and to start erosion, especially on steep slopes. Water runoff was studied for several years in Wisconsin with the following results:

*Steep grazed woods,* run-off 295 barrels per acre per year

*Steeper ungrazed woods,* run-off 6 barrels per acre per year

*Steep grazed pasture,* run-off 92 barrels per acre per year

Run-off is also increased by the reduction of leaf litter and undergrowth caused by grazing. Lack of these means (1) deep soil freezing which prevents water absorption in the soil, and (2) early melting of the snow which adds to spring flood hazards.

In woodlots where the crown canopy is still nearly closed and there is little or no sod cover, exclusion of livestock allows natural reproduction to become established in 10 to 15 years. Where stagheads are common, and a heavy sod present, it may be better to cut the trees and convert to pasture.

## Value of the Woods for Grazing

IF GRAZING is so damaging to trees and soil, how much value do cattle receive? Several striking experiments give the answer. In Indiana, a steer lost weight in the summer when given the range of 6 acres of oak-hickory woods. In Iowa, 30 acres of

woodlot were required to support one cow for six months.

A five-year experiment in Wisconsin, involving 29 sample areas, gives the best proof. Most of the woodland pasture had considerable sod and grass. The average annual production of feed (dry weight) per acre was as follows:

*Woodland pasture*—276 pounds (poor quality)

*Untreated open pasture*—1453 pounds

*Renovated open pasture*—3210 pounds

More and better feed could be obtained by improving 1 acre of present pasture than by turning the cows into 6 acres of open woods.

Some woods plants are poisonous to cattle, especially when good forage is scarce in early spring or in drought periods. Poisonous plants include choke cherry, black cherry, Dutchman's breeches, bracken fern, certain nightshades, and white snakeroot. Poisoning may result in loss of milk production, if not actual loss of the cow.

## Grazing and Maple Sap

It is generally recognized that continued heavy grazing destroys the sugar bush, although some producers point with pride to good yields from large, open trees. These good yields are caused by the large leaf-bearing portion of the tree and the openness

**Good woodlot management**

Older, big trees have been cut for valuable lumber. Protection from grazing has permitted a new, fast-growing stand of straight sugar maple, ash, and yellow poplar. These currently need thinning to maintain good growth. Note the red oak stump, representing perhaps 500 board feet of oak flooring for the owner's house.

of the area. It is better to obtain large, open trees by use of the axe and chainsaw than through grazing.

Rot in treetops and deep soil freezing have decreased sap production in heavily grazed sugar bushes. In one study, the ungrazed sugar bush produced about 6 more gallons of sirup per acre each year than the grazed sugar bush. In very lightly grazed sugar bushes, sap flow seems to be influenced much more by weather than by grazing. Sap flow is reduced, however, by cold north and west winds sweeping through where no undergrowth remains.

The only good argument for light grazing in sugar bushes is to reduce the undergrowth and make sap collection easier. On the other hand, this can also be done by cutting lanes from the roadways to the sugar trees. New brush-killer chemicals, such as 2,4–D or 2,4,5–T, help to prevent regrowth and offer a cheap way to control the undergrowth in lanes. This is perhaps a better alternative than lower milk production.

## What to Do?

How can cattle receive the benefits from the woodlot; namely, shade, and fly and wind protection.

Should a small portion of the woodlot be fenced off next to good pasture so cows may enter for part-time protection?

Should there be a fenced lane through woods from one pasture to another?

Should special tree plantings be made at strategic parts of the pasture?

In woods with little slope next to *good improved* pastures, is cattle damage enough to warrant fencing?

There may be a place for some of these practices on many New York farms.

A publication of the
New York State College of Agriculture,
a unit of the State University of New York,
at Cornell University

June 1955

Published by the New York State College of Agriculture at Cornell University, Ithaca, New York. M. C. Bond, Director of Extension. This bulletin is published and distributed in furtherance of the purposes provided for in the Acts of Congress of May 8 and June 30, 1914.